



## VERSION WITH MARKINGS TO SHOW CHANGES MADE

### In the Claims

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MAY 09 2001

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The claims have been changed as follows:

1           10. (Amended) A slider, comprising:  
2           a transducer for transferring information to and from a rotating disk medium  
3           during read and write operations; and  
4           a pad which maintains substantially continuous contact with the medium during  
5           the read and write operations, wherein the pad has a leading edge that faces into a general  
6           direction of relative motion between the slider and the medium, the pad has a trailing  
7           edge that faces away from the direction, the leading edge has a width that is substantially  
8           perpendicular to the direction, the trailing edge has a width that is substantially  
9           perpendicular to the direction, and the width of the leading edge is substantially narrower  
10          than the width of the trailing edge.

1           38. (Amended) The slider of claim 10 wherein the width of the leading edge is  
2           much narrower than the width of the trailing edge [pad maintains near-contact with the  
3           medium during the read and write operations].

1           39. (Amended) The slider of claim 10 wherein the leading edge is a tip and the  
2           trailing edge is a straight edge [pad maintains a near-contact flying height in the range of  
3           1 to 3 microinches during the read and write operations].

## REMARKS

Claims 1-69 are pending. In this Response, claims 10, 38 and 39 have been amended.

### I. DRAWING OBJECTIONS

The drawings are objected to since the drawings must show every feature of the invention specified in the claims 13, 16, 19, 22, 25, 27, 29 and 30, and therefore various leading edge portions of the pad spaced from the trailing edge of the pad (claims 13, 16, 19, 22 and 25), the leading edge of the pad spaced from the leading edge of the slider (claim 27), the leading and trailing edges of the slider with substantially identical widths (claim 29), and a distance between the leading edge of the pad and the trailing edge of the slider being substantially less than a distance between the leading edges of the pad and the slider (claim 30) must be shown or the features canceled from the claims. Applicant disagrees.

It is not mandatory for every claimed feature to be shown in the drawings, as is clear from the many patents that issue without drawings. The patent statute states as follows:

The applicant shall furnish a drawing where necessary for the understanding of the subject matter sought to be patented. When the nature of such subject matter admits of illustration by a drawing and the applicant has not furnished such a drawing, the Commissioner may require its submission within a time period of not less than two months from sending a notice thereof. (35 U.S.C. § 113.)

Having various leading edge portions of the pad spaced from the trailing edge of the pad (claims 13, 16, 19, 22 and 25) would be readily understood by those skilled in the art.

For instance, the specification describes Figures 3A and 3B as follows:

Although Figures 3A and 3B show the entire slider being shaped in an overall triangular or V-shape, it should be understood that in some cases only the front portion or leading section of the contact pad structure may be shaped in this way. In other words, the essential characteristic of the invention is that the leading edge of [the] slider be shaped so as to push away debris as the head slides across the surface of the recording medium. (Page 9, lines 10-15.)

Furthermore, Figures 6A-6C show slider rails in which various leading edge portions (such as wedge-shaped portions, V-shaped portions and U-shaped portions) are spaced from the trailing edge by rectilinear portions. Thus, one skilled in the art would readily understand how various leading edge portions of the pad could be spaced from the trailing edge of the pad (claims 13, 16, 19, 22 and 25) without a drawing.

Similarly, having the leading edge of the pad spaced from the leading edge of the slider (claim 27), having the leading and trailing edges of the slider with substantially identical widths (claim 29), and having a distance between the leading edge of the pad and the trailing edge of the slider being substantially less than a distance between the leading edges of the pad and the slider (claim 30) would be readily understood by one skilled in the art without a drawing.

For instance, the specification describes Figures 3A and 3B as follows:

By way of illustration, Figures 3A and 3B show a contact pad 30 suitable for use in an integrated read/write head of the type described in connection with Figure 2. (Page 9, lines 4-5.)

Figure 2 shows a conventional integrated read/write head/flexure/conductor structure 20 that includes an elongated, dielectric flexure body 22 with pad 21 disposed at the trailing edge. As is seen, the leading edge of pad 21 is spaced from the leading edge of flexure body 22 (claim 27), the leading and trailing edges of flexure body 22 have substantially identical widths (claim 29), and a distance between the leading edge of pad 21 and the trailing edge of flexure body 22 is substantially less than a distance between the leading edges of pad 21 and flexure body 22 (claim 30).

Although the specification could have contained more drawings directed to the features recited in claims 13, 16, 19, 22, 25, 27, 29 and 30, in view of the existing disclosure, this would have been redundant and unenlightening.

The Examiner has not even attempted to explain why showing the features recited in claims 13, 16, 19, 22, 25, 27, 29 and 30 would be necessary in the context of the present invention, perhaps because such explanation would be grossly inconsistent with the Examiner's position in the art rejections set forth below.

Applicant submits that the written description completely supports the claims 13, 16, 19, 22, 25, 27, 29 and 30, and that drawings for these features are unnecessary and would merely clutter the disclosure. Therefore, Applicant respectfully requests that these objections be withdrawn.

## **II. CLAIM OBJECTIONS**

Claims 2-4 and 10-39 are objected to because in claims 2, 3, 4, 10, 27, 29 and 31, "general" should be inserted before each occurrence of "direction."

Applicant disagrees and sees no need for correction. The "direction" in claims 2-4 clearly refers to the "general direction" in claim 1, and the "direction" in claims 10, 27, 29 and 31 clearly refers to the "general direction" in claim 10. There is no antecedent basis problem or ambiguity.

Similarly, claims 1 and 10 recite a "rotating disk medium" and subsequently refer to it as the "medium." Likewise, the "medium" in claims 26 and 35-38 clearly refers to the "rotating disk medium" in claim 10. The Examiner has not objected to this terminology, which further indicates that the objection to "direction" is unnecessary.

Reciting "direction" as shorthand for the "general direction" is perfectly acceptable terminology (as is reciting "medium" as shorthand for the "rotating disk medium"). If the Examiner considers this language so vague and unclear as to warrant a rejection under Section 112, second paragraph, he may so state for the record.

Therefore, Applicant respectfully requests that these objections be withdrawn.

### III. SECTION 112, SECOND PARAGRAPH REJECTIONS

Claims 29, 38 and 39 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. The Examiner sets forth two basis for rejection, each of which is discussed below.

Claim 29 is rejected since the inclusion of “a width” in lines 1 and 3 creates confusion with the widths set forth in claim 10. Applicant disagrees. The widths set forth in claim 10 clearly refer to the leading and trailing edges of the pad, whereas the widths set forth in claim 29 clearly refer to the leading and trailing edges of the slider.

Claims 38 and 39 are rejected since claim 10 recites that the pad “maintains substantially continuous contact with the medium” whereas claims 38 recites “the pad maintains near-contact with the medium” and claim 39 recites “the pad maintains a near-contact flying height.” Claims 38 and 39 have been amended to delete this terminology.

Therefore, Applicant respectfully requests that these rejections be withdrawn.

### IV. SECTION 102 REJECTIONS -- FUKUOKA ET AL.

Claims 10, 38 and 39 are rejected under 35 U.S.C. § 102(e) as being anticipated by *Fukuoka et al.* (U.S. Patent 5,541,789).

*Fukuoka et al.* discloses magnetic recording apparatus in which a gap between a slider and a magnetic disk is smaller than a total thickness of a protective layer and a lubricating layer on the disk. The slider is supported by a small load of 6 gW or less while the disk is rotated at a high velocity of 6 to 40 m/s at the innermost track in order to provide a high data rate of 4 MB/s and reduce the impingement and sliding force between the slider and the disk. The slider is a rigid body (col. 6, lines 1-7).

*Fukuoka et al.* fails to teach or suggest a slider that includes a pad. For instance, as seen in Figures 6 and 7, the surface of slider 1 that faces the disk is part of the rigid body.

Claim 10 recites "A slider, comprising . . . a pad which maintains substantially continuous contact with the medium during the read and write operations."

In sustaining this rejection, the Examiner merely refers to *Fukuoka et al.* at Figure 7. Thus, the Examiner has not even attempted to explain how *Fukuoka et al.* provides the claimed pad.

Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. *Akzo N.V. v. United States International Trade Commission*, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). That is, the reference must teach every aspect of the claimed invention. M.P.E.P. § 706.02, page 700-10 (July, 1998). Anticipation cannot be established by ignoring claim elements.

Therefore, Applicant respectfully requests that these rejections be withdrawn.

#### **V. SECTION 102 REJECTIONS -- BREZOCZKY ET AL.**

Claims 1, 2, 10-12, 17, 18, 26, 31 and 33-37 are rejected under 35 U.S.C. § 102(b) as being anticipated by *Brezoczky et al.* (U.S. Patent 4,819,091).

*Brezoczky et al.* discloses a magnetic disk recording system in which a slider that contains single crystal material is maintained in contact with a disk by contact electrification between the single crystal material and the disk. The contact electrification provides sufficient attractive force to hold the slider in place while the disk rotates at 20 m/s or higher without the need for external force. The single crystal material has high thermal conductivity, low friction coefficient, high surface energy, low electrical conductance, and high hardness. Suitable materials are single crystal diamond and single crystal cubic boron nitride. The high hardness prevents plastic deformation and wear of the slider. As a result, the hardness should be above 3500 kg/mm<sup>2</sup>.

In the embodiment in Figure 2, slider 16 is composed of the single crystal material. In the embodiment in Figure 5, slider 50 includes thin sheet 52 of the single crystal material which is bonded to ceramic slider body 56.

*Brezoczky et al.* fails to teach or suggest a slider that includes a pad. For instance, the single crystal material such as diamond that provides the contact electrification must have high hardness to prevent plastic deformation and wear.

Claim 1 recites "A recording head . . . including a pad having a working surface which contacts said medium during the reading/writing process."

Claim 10 recites "A slider, comprising . . . a pad which maintains substantially continuous contact with the medium during the read and write operations."

In sustaining this rejection, the Examiner merely refers to *Brezoczky et al.* at Figures 2 and 5. Thus, the Examiner has not even attempted to explain how *Brezoczky et al.* provides the claimed pad.

Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. *Akzo N.V. v. United States International Trade Commission*, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). That is, the reference must teach every aspect of the claimed invention. M.P.E.P. § 706.02, page 700-10 (July, 1998). Anticipation cannot be established by ignoring claim elements.

Moreover, if *Brezoczky et al.* were modified to include a pad at the contact surface then the contact electrification provided by the single crystal material would be reduced or destroyed, thereby rendering *Brezoczky et al.* unsatisfactory for its intended purpose. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. See M.P.E.P. § 2143.01 (seventh edition, page 2100-112).

Therefore, Applicant respectfully requests that these rejections be withdrawn.

## **VI SECTION 103 REJECTIONS -- BREZOCZKY ET AL.**

Claims 13 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Brezoczky et al.* Applicant respectfully submits that these rejections are moot for the reasons given above.

## **VII. SECTION 103 REJECTIONS -- BREZOCZKY ET AL. AND FUKUOKA ET AL.**

Claims 3, 4, 14-16, 20-25 and 32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Brezoczky et al.* in view of *Fukuoka et al.* Applicant respectfully submits that these rejections are moot for the reasons given above.

## **VIII. SECTION 103 REJECTION -- BREZOCZKY ET AL. AND KUBO**

Claim 27 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Brezoczky et al.* in view of *Kubo et al.* (U.S. Patent 4,901,185). Applicant respectfully submits that this rejection is moot for the reasons given above.

## **IX. SECTION 103 REJECTIONS -- BREZOCZKY ET AL., KUBO AND FUKUOKA ET AL.**

Claims 28 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Brezoczky et al.* in view of *Kubo et al.* and *Fukuoka et al.* Applicant respectfully submits that these rejections are moot for the reasons given above.

## **X. SECTION 103 REJECTION -- BREZOCZKY ET AL., KUBO AND SAITOH ET AL.**

Claim 30 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Brezoczky et al.* in view of *Kubo et al.* and *Saitoh et al.* (U.S. Patent 4,926,274). Applicant respectfully submits that this rejection is moot for the reasons given above.



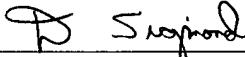
## XI. OTHER AMENDMENTS

Claim 10 has been amended to insert a colon after "comprising."

## XII. CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on April 31, 2001.

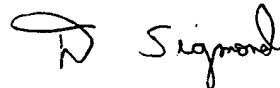


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Respectfully submitted,



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